



# **Deep Learning**

# **深度學習**

## **ECM9042 (5101)**

**李佳翰 教授**

**Prof. Chia-Han Lee**



# Course information

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- **Instructor**
  - **Professor Chia-Han Lee 李佳翰教授**
  - **Email: [chiahhan@nycu.edu.tw](mailto:chiahhan@nycu.edu.tw)**
- **Teaching assistants (TAs)**
  - **楊秉勸、吳鈞皓、何姍諭、呂可成、陳律言**  
**(Office: ED812A)**
- **Course hours**
  - **Tue. 13:20-16:20**
- **Room: ED219**
- **Office hours: by appointment**



# Course goal and prerequisite

- **Goal**
  - **The goal of this course is to help students master the basic concepts and skills of deep learning that will be helpful for their study and research.**
  - **Students will learn how to implement deep learning.**
  - **Students will apply what they learn to the final project.**
- **Prerequisite**
  - **Linear algebra, Probability, Optimization (preferred)**



# Course outline

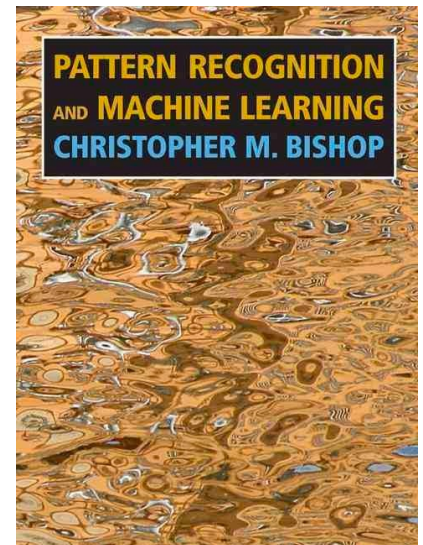
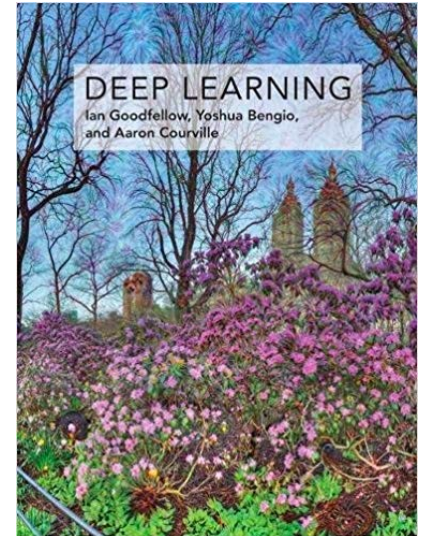
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- **Introduction to machine learning**
- **Deep forward networks**
- **Regularization for deep learning**
- **Optimization for training deep models**
- **Convolutional networks**
- **Recurrent and recursive networks**
- **Autoencoders**
- **Transfer learning**
- **Deep generative models**
- **Reinforcement learning**



# Readings

- **Textbook**
  - I. Goodfellow and Y. Bengio and A. Courville, *Deep Learning*, The MIT Press, 2016 (also available online)
- **Reference**
  - C. Bishop, *Pattern Recognition and Machine Learning*, Springer, 2007
- **Papers**
  - To be assigned





# Grading

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- **Homework (programming): 30%**
  - 3 programming homeworks
- **Paper presentation: 15%**
  - Present deep learning papers (in teams)
- **Exam: 30%**
  - Written, closed book
  - Dec. 9, 2025
- **Final project: 25%**
  - Competition in teams



# Policy

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- **Asking and answering questions is encouraged.**
- **Copying codes/reports is prohibited.**
- **Grading is non-negotiable. Do not ask me for extra points!**
- **Come to talk to me whenever you have doubts/questions/problems. Do not wait until the last minute!**



**If you decide to take this course, please take it seriously, and don't give up!**